Pushing the Envelope			
2009 Science			
Academic Standards			
Minnesota Science			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	MN	SCI.5.5.2.2.1.2	Physical Science: Motion: Identify the force that starts something moving or changes its speed or direction of motion.
Physics and Math (pgs. 43-63)	MN	SCI.5.5.2.2.1.2	Physical Science: Motion: Identify the force that starts something moving or changes its speed or direction of motion.
Physics and Math (pgs. 43-63)	MN	SCI.5.5.2.2.1.3	Physical Science: Motion: Demonstrate that a greater force on an object can produce a greater change in motion.
Rocket Activity (pgs. 69-75)	MN	SCI.5.5.2.2.1.2	Physical Science: Motion: Identify the force that starts something moving or changes its speed or direction of motion.
Rocket Activity (pgs. 69-75)	MN	SCI.5.5.2.2.1.3	Physical Science: Motion: Demonstrate that a greater force on an object can produce a greater change in motion.

Pushing the Envelope			
2009 Science			
Academic Standards			
Minnesota Science			
Grade 6			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	MN	SCI.6.6.2.2.2.1	Physical Science: Motion: Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.
Physics and Math (pgs. 43-63)	MN	SCI.6.6.2.2.2.1	Physical Science: Motion: Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.
Physics and Math (pgs. 43-63)	MN	SCI.6.6.2.2.2.2	Physical Science: Motion: Identify the forces acting on an object and describe how the sum of the forces affects the motion of the object.
Rocket Activity (pgs. 69-75)	MN	SCI.6.6.2.2.2.1	Physical Science: Motion: Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.
Rocket Activity (pgs. 69-75)	MN	SCI.6.6.2.2.2.2	Physical Science: Motion: Identify the forces acting on an object and describe how the sum of the forces affects the motion of the object.

Pushing the Envelope			
2009 Science			
Academic Standards			
Minnesota Science			
Grade 7			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	MN	SCI.7.7.2.1.1.3	Physical Science: Matter: Recognize that a chemical equation describes a reaction where pure substances change to produce one or more pure substances whose properties are different from the original substance(s).
Pushing the Envelope			
2009 Science			
Academic Standards			
Minnesota Science			
Grade 8			
Activity/Lesson	**State**	**Standards**	
History of Aviation Propulsion (pgs. 5-9)	MN	SCI.8.8.1.3.2.1	Describe examples of important contributions to the advancement of science, engineering and technology made by individuals representing different groups and cultures at different times in history.
Pushing the Envelope			
2009 Science			
Academic Standards			
Minnesota Science			
Grades 9-12			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	MN	SCI.9-12.9.2.1.2.2	Physical Science: Matter: Explain how the rearrangement of atoms in a chemical reaction illustrates the law of conservation of mass.
Chemistry (pgs. 25-41)	MN	SCI.9-12.9.2.1.2.3	Physical Science: Matter: Describe a chemical reaction using words and symbolic equations.
Physics and Math (pgs. 43-63)	MN	SCI.9-12.9.2.2.2.2	Physical Science: Motion: Explain and calculate the acceleration of an object subjected to a set of forces in one dimension (F = ma).
Physics and Math (pgs. 43-63)	MN	SCI.9-12.9.2.2.2.3	Physical Science: Motion: Demonstrate that whenever one object exerts force on another, a force equal in magnitude and opposite in direction is exerted by the second object back on the first object.
Rocket Activity (pgs. 69-75)	MN	SCI.9-12.9.2.2.2.2	Physical Science: Motion: Explain and calculate the acceleration of an object subjected to a set of forces in one dimension (F = ma).
Rocket Activity (pgs. 69-75)	MN	SCI.9-12.9.2.2.2.3	Physical Science: Motion: Demonstrate that whenever one object exerts force on another, a force equal in magnitude and opposite in direction is exerted by the second object back on the first object.
Pushing the Envelope			

2009 Science Academic Standards			
Minnesota Science			
Grades 9-12 (Physics)			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	MN	SCI.9-12.9P.2.2.2.2	Physical Science: Motion: Describe and calculate the change in velocity for objects when forces are applied perpendicular to the direction of motion.
Physics and Math (pgs. 43-63)	MN	SCI.9-12.9P.2.2.1.1	Physical Science: Motion: Use vectors and free-body diagrams to describe force, position, velocity and acceleration of objects in two-dimensional space.
Physics and Math (pgs. 43-63)	MN	SCI.9-12.9P.2.2.1.2	Physical Science: Motion: Apply Newton's three laws of motion to calculate and analyze the effect of forces and momentum on motion.
Physics and Math (pgs. 43-63)	MN	SCI.9-12.9P.2.2.2.2	Physical Science: Motion: Describe and calculate the change in velocity for objects when forces are applied perpendicular to the direction of motion.
Rocket Activity (pgs. 69-75)	MN	SCI.9-12.9P.2.2.1.1	Physical Science: Motion: Use vectors and free-body diagrams to describe force, position, velocity and acceleration of objects in two-dimensional space.
Rocket Activity (pgs. 69-75)	MN	SCI.9-12.9P.2.2.1.2	Physical Science: Motion: Apply Newton's three laws of motion to calculate and analyze the effect of forces and momentum on motion.
Rocket Activity (pgs. 69-75)	MN	SCI.9-12.9P.2.2.2.2	Physical Science: Motion: Describe and calculate the change in velocity for objects when forces are applied perpendicular to the direction of motion.